

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

- 1 1. (Currently Amended) A wireless audio transmission and reception system
2 comprising:
- 3 a pulse width amplifier to receive an audio signal and a reference
4 control ramp signal to compare said a voltage level of said audio
5 signal with said reference control ramp signal to generate a
6 digital output signal such that a pulse width of said digital output
7 signal is modulated by and modulate a pulse width of a digital
8 ~~timing signal with~~ said audio signal, such that the pulse width is
9 proportional to an amplitude of said voltage level of said audio
10 signal to provide a pulse width modulated signal;
- 11 an up-converter in communication with the pulse width amplifier to
12 receive the pulse width modulated signal and convert said pulse
13 width modulated signal to a modulated carrier signal;
- 14 a transmitter in communication with the modulated carrier signal to
15 transfer the modulated carrier signal wirelessly;

16 a receiver to receive the modulated carrier signal;

17 a down-converter in communication with the receiver to receive the

18 modulated carrier signal and combine said modulated carrier

19 signal with a receiver local oscillator frequency signal to and

20 extract the pulse width modulated signal from the modulated

21 carrier signal; and

22 an integrator in communication with the down-converter to receive the

23 extracted pulse width modulated signal to remove a timing

24 signal from said extracted pulse width modulated signal to

25 restore the audio signal.

1 2. (Previously Presented) The system of claim 1 further comprising power

2 amplifier in communication with the integrator to receive the audio signal

3 and amplify said audio signal and transfer said amplified audio signal to a

4 transducer.

1 3. (Currently Amended) The system of claim 1 wherein the pulse width

2 amplifier comprises

3 a comparator having a first input to receive the audio signal and a

4 second input to receive the ~~timing signal~~ reference control ramp

5 signal, said ~~timing signal~~ reference control ramp signal having a

6 triangular form such that, as said comparator compares the

7 audio signal and the ~~timing signal~~ reference control ramp signal,
8 the pulse width modulated signal is provided to an output of said
9 comparator.

1 4. (Original) The system of claim 1 wherein the up-converter comprises a
2 modulation apparatus to combine a carrier frequency with the pulse width
3 modulated signal to form the modulated carrier signal.

1 5. (Original) The system of claim 4 wherein the modulation apparatus is
2 selected from a group of modulation apparatus consisting of frequency
3 shift keying modulation apparatus, amplitude shift keying modulation
4 apparatus, phase shift keying modulation apparatus, quadrature phase
5 shift keying modulation apparatus, time domain multiple access
6 modulation apparatus, and code domain multiple access modulation
7 apparatus.

1 6. (Original) The system of claim 1 wherein the down-converter comprises a
2 demodulation apparatus to extract the pulse width modulated signal from
3 the modulated carrier signal.

1 7. (Original) The system of claim 6 wherein the demodulation apparatus is
2 selected from a group of demodulation apparatus consisting of frequency
3 shift demodulation apparatus, amplitude shift keying demodulation
4 apparatus, phase shift keying demodulation apparatus, quadrature phase
5 shift keying demodulation apparatus, time domain multiple access

6 demodulation apparatus, and code domain multiple access demodulation
7 apparatus.

1 8. (Previously Presented) The system of claim 1 wherein the integrator is a
2 low pass filter having a cut off frequency suitable to pass the audio signal
3 and remove the timing signal.

1 9. (Original) The system of claim 1 wherein the carrier frequency is at least
2 900 MHz.

1 10. (Currently Amended) A wireless audio transmitter system comprising:

2 a pulse width amplifier to receive an audio signal and a reference
3 control ramp signal to compare said a voltage level of said audio
4 signal with said reference control ramp signal to generate a
5 digital output signal such that a pulse width of said digital output
6 signal is modulated by ~~and modulate a pulse width of a digital~~
7 ~~timing signal with~~ said audio signal, such that the pulse width is
8 proportional to an amplitude of said voltage level of said audio
9 signal to provide a pulse width modulated signal;

10 an up-converter in communication with the pulse width amplifier to
11 receive the pulse width modulated signal and convert said pulse
12 width modulated signal to a modulated carrier signal; and

13 a transmitter in communication with the modulated carrier signal to
14 transfer the modulated carrier signal wirelessly.

1 11. (Currently Amended) The transmitter system of claim 10 wherein the pulse
2 width amplifier comprises

3 a comparator having a first input to receive the audio signal and a
4 second input to receive ~~the timing signal~~ said reference control
5 ramp signal, ~~said timing signal~~ reference control ramp signal
6 having a triangular form such that, as said comparator
7 compares the audio signal and ~~the timing signal~~ reference
8 control ramp signal, the pulse width modulated signal is
9 provided to an output of said comparator.

1 12. (Original) The transmitter system of claim 10 wherein the up-converter
2 comprises a modulation apparatus to combine a carrier frequency with the
3 pulse width modulated signal to form the modulated carrier signal.

1 13. (Original) The transmitter system of claim 12 wherein the modulation
2 apparatus is selected from a group of modulation apparatus consisting of
3 frequency shift keying modulation apparatus, amplitude shift keying
4 modulation apparatus, phase shift keying modulation apparatus,
5 quadrature phase shift keying modulation apparatus, time domain multiple
6 access modulation apparatus, and code domain multiple access
7 modulation apparatus.

8 14. The transmitter system of claim 10 wherein the carrier frequency is at
9 least 900 MHz.

1 15. (Currently Amended) A wireless audio receiver system comprising:

2 a receiver to receive a modulated carrier signal;

3 a down-converter in communication with the receiver to receive the
4 modulated carrier signal and combine said modulated carrier
5 signal with a receiver local oscillator frequency signal to extract
6 a pulse width modulated signal from the modulated carrier
7 signal; and

8 an integrator in communication with the down-converter to receive the
9 extracted pulse width modulated signal to remove a timing
10 signal from said extracted pulse width modulated signal to
11 restore an audio signal.

1 16. (Original) The receiver system of claim 15 wherein the down-converter
2 comprises a demodulation apparatus to extract the pulse width modulated
3 signal from the modulated carrier signal.

1 17. (Original) The receiver system of claim 16 wherein the demodulation
2 apparatus is selected from a group of demodulation apparatus consisting
3 of frequency shift demodulation apparatus, amplitude shift keying
4 demodulation apparatus, phase shift keying demodulation apparatus,

5 quadrature phase shift keying demodulation apparatus, time domain
6 multiple access demodulation apparatus, and code domain multiple
7 access demodulation apparatus.

1 18. (Previously Presented) The receiver system of claim 15 wherein the
2 integrator is a low pass filter having a cut off frequency suitable to pass
3 the audio signal and remove the timing signal.

1 19. (Previously Presented) The receiver system of claim 15 wherein the
2 carrier frequency is at least 900 MHz.

1 20. (Currently Amended) A method for wireless transmission of an audio
2 signal comprising the steps of:

3 acquiring the audio signal;

4 comparing said audio signal with a ~~timing signal~~ reference control ramp
5 signal;

6 from said comparing, ~~forming a pulse width modulated signal~~

7 generating a digital output signal such that a pulse width of said

8 digital output signal is modulated by said audio signal, such that

9 the pulse width is proportional to an amplitude of said voltage

10 level of said audio signal to provide a pulse width modulated

11 signal;

12 up-converting the pulse width modulated signal to a modulated carrier
13 signal;
14 transmitting said modulated carrier signal;
15 receiving said modulated carrier signal;
16 down-converting said modulated carrier signal to restore the pulse
17 width modulated signal by the step of combining said modulated
18 carrier signal with a receiver local oscillator frequency signal to
19 extract the pulse width modulated signal from the modulated
20 carrier signal; and
21 integrating the restored pulse width modulated signal to remove a
22 timing signal from said restored pulse width modulated signal to
23 extract said audio signal.

1 21. (Previously Presented) The method of claim 20 further comprising the
2 steps of:

3 amplifying the restored audio signal

4 transferring the amplified audio signal to a transducer.

1 22. (Currently Amended) The method of claim 20 wherein the comparing the
2 audio signal to the timing signal and forming the pulse width modulated
3 signal comprises the step of:

4 forming the ~~timing signal~~ reference control ramp signal to have a
5 triangular waveform;

6 comparing the amplitude of the audio signal to the amplitude of the
7 triangular waveform;

8 if the amplitude of the audio signal is greater than the amplitude of the
9 timing signal, setting the pulse width modulated signal to a first
10 logic level; and

11 if the amplitude of the audio signal is less than the amplitude of the
12 timing signal, setting the pulse width modulated signal to a
13 second logic level.

1 23. (Original) The method of claim 20 wherein the up converting the pulse
2 width modulating signal to the modulated carrier signal comprises the
3 steps of

4 combining a carrier frequency with the pulse width modulated signal to
5 form the modulated carrier signal.

1 24. The method of claim 23 wherein the combining of the carrier frequency
2 with the pulse width modulated signal is a modulating of the carrier
3 frequency by the pulse width modulated signals, said modulating being
4 selected from a group of modulating steps consisting of frequency shift
5 keying modulating, amplitude shift keying modulating, phase shift keying

6 modulating, quadrature phase shift keying modulating, time domain
7 multiple access modulating, and code domain multiple access modulating.

1 25. (Currently Amended) The method of claim 20 wherein the down-
2 converting said modulated carrier signal to restore the pulse width
3 modulated signal comprises the step of:

4 combining a ~~local oscillator signal~~ receiver local oscillator frequency
5 signal with the modulated carrier signal to restore the pulse
6 width modulated signal.

1 26. (Original) The method of claim 23 wherein combining of local oscillator
2 signal with the carrier frequency is a demodulating of the carrier frequency
3 to extract the pulse width modulated signals, said demodulating being
4 selected from a group of demodulating steps consisting of frequency shift
5 keying demodulating, amplitude shift keying demodulating, phase shift
6 keying demodulating, quadrature phase shift keying demodulating, time
7 domain multiple access demodulating, and code domain multiple access
8 demodulating.

1 27. (Original) The method of claim 20 wherein the carrier signal is at least 900
2 MHz.